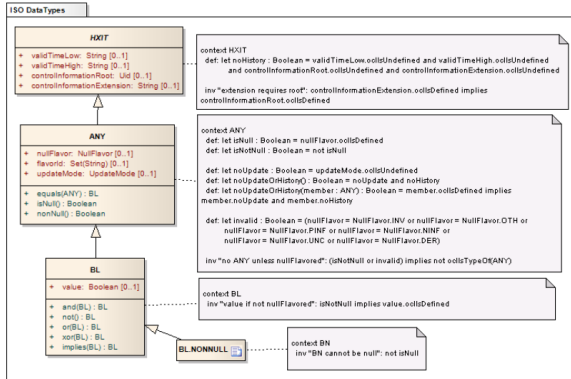


# ISO 21090 Datatypes Guide

Modules can be loaded from XML.

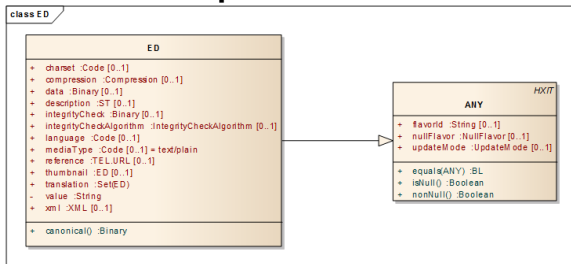
This is the guide to put in data-types of collections we need to know.

## ISO BL - Boolean



```
<example xsi:type="BL" value="true" />
<example xsi:type="BL" nullFlavor="UNK" />
```

## ISO ED - Encapsulated Data



```
<value xsi:type="ED" mediaType="image/jpeg">
VGhpcyBzaG91bGQgYmUgYSBKEUEgRmlsZSAsOYnV0IGlzbid0IGZvciBzaW1wbG1ja
XR5IG9mIHROZSBlcGFTcGx1KQ==
</value>
```

```
<example xsi:type="ED" value="this is plain text" mediaType="text/plain" />
```

```
<example xsi:type="ED" value="this is plain text" />
```

```
<example xsi:type="ED" flavorId="ED.TEXT" value="this is plain text"
language="en" mediaType="text/plain" />
```

```
<example xsi:type="ED" flavorId="ED.TEXT" value="dieses ist normaler
Text" language="de" mediaType="text/plain" />
```

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```
<example xsi:type="ED" value="this is plain text" language="en">
<translation xsi:type="ED" value="dieses ist normaler Text" language="de"
/>
</example>
```

```
<example xsi:type="ED" value="this is plain text" language="en-ca">
<translation xsi:type="ED" value="ce ci est du texte non structuré"
language="fr-ca" />
</example>
```

```
<example xsi:type="ED">
dGhpcyBpcyBiaW5hcnkgY29udGVudA==
</example>
```

```
<example xsi:type="ED" charset="UTF-8">
dGhpcyBpcyBiaW5hcnkgY29udGVudA==
</example>
```

```
<aED_IMAGE xsi:type="ED" mediaType="image/jpg">
<reference value="http://www.tempuri.org/XXXXXXXXXXXX" />
</aED_IMAGE>
```

```
<aED_IMAGE xsi:type="ED" mediaType="image/jpg" compression="GZ">
<reference value="http://www.tempuri.org/XXXXXXXXXXXX" />
</aED_IMAGE>
```

```
<aED_TEXT xsi:type="ED" mediaType="text/xml">

PHBhcmVudD4NCiAgPGNoaWxkPlRoaxMgaXMgc29tZSB0ZXh0IGluI
HRoZSBjaGlsZDwvY2hpbGQ+
DQogIFRoaxMgaXMgc29tZSB0ZXh0IGluIHRoZSBwYXJlbnQNCjwvcG
FyZW50Pg==

</aED_TEXT>
```

```
<aED_TEXT xsi:type="ED" mediaType="text/xml" charset="ASCII">

PHBhcmVudD4NCiAgPGNoaWxkPlRoaxMgaXMgc29tZSB0ZXh0IGlu
IHRoZSBjaGlsZDwvY2hpbGQ+
DQogIFRoaxMgaXMgc29tZSB0ZXh0IGluIHRoZSBwYXJlbnQNCjwvcG
FyZW50Pg==

</aED_TEXT>
```

```
<aED_TEXT xsi:type="ED" mediaType="text/xml">
<xml>
<parent>
<child>This is some text in the child</child>
This is some text in the parent
</parent>
</xml>
</aED_TEXT>
```

```
<example xsi:type="ED" mediaType="application/pdf" compression="GZ">

/9j/4AAQSkZJRgABAgEAgACAAD/2wCEAAICAgIC
AQICAgICAgICAwQDAwMDAwUEBAMEBgYHBgYG
BgYHCAoIBwcJBwYGCAsJCQoKCwsLBwgMDQwKDAoLCwoBAGIC
AwMDBQMDBQoHBgcKCgoKCgoKCgoK
CgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgo
KCv/AABEIAg4CuQMBIQACEQED
EQH/xAGiAAABBQEBAQEBAQAAAAAAAAAQIDBAUGBwgJCgsBAAM
BAQEBAQEBAQAAAAAAAAABAgME
BQYHCAkKCxAAAgEDAwIEAwUFBAQAAAF9AQIDAAQRBRIhMUEGE1F
hByJxFDKBkaEII0KxwRVS0fAk
CigAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKAC
gAooAKKACigAooAKKACigAoo
AKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAK
KACigAooAKKACigAooAKKACi
gAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKACigA
ooAKKACigAooAKKAP//Z

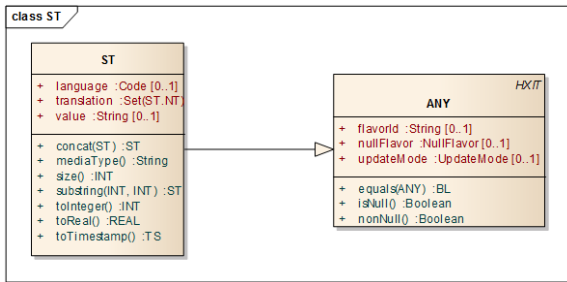
</example>
```

```
<aED_IMAGE xsi:type="ED" mediaType="image/png">
<reference value="http://example.org/xrays/128s8d9ej229se32s.png">
<useablePeriod xsi:type="IVL_TS">
<low value="200007200845" />
<high value="200008200845" />
</useablePeriod>
</reference>
<integrityCheck>
EQH/xAGiAAABBQEBAQEBAQAAAAAAAAAQIDBAUGBwgJCgsB
AAMBAQEBAQEBAQAAAAAAAAABAgME
</integrityCheck>
<thumbnail mediaType="image/jpeg">

/9j/4AAQSkZJRgABAgEAgACAAD/2wCEAAICAgIC
AQICAgICAgICAwQDAwMDAwUEBAMEBgYHBgYG
BgYHCAoIBwcJBwYGCAsJCQoKCwsLBwgMDQwKDAoLCwoBAGIC
AwMDBQMDBQoHBgcKCgoKCgoKCgoK
CgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgoKCgo
KCv/AABEIAg4CuQMBIQACEQED
EQH/xAGiAAABBQEBAQEBAQAAAAAAAAAQIDBAUGBwgJCgsBAAM
BAQEBAQEBAQAAAAAAAAABAgME
BQYHCAkKCxAAAgEDAwIEAwUFBAQAAAF9AQIDAAQRBRIhMUEGE1F
hByJxFDKBkaEII0KxwRVS0fAk
CigAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKAC
gAooAKKACigAooAKKACigAoo
AKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAK
KACigAooAKKACigAooAKKACi
gAooAKKACigAooAKKACigAooAKKACigAooAKKACigAooAKKACigA
ooAKKACigAooAKKAP//Z

</thumbnail>
</aED_IMAGE>
```

**ISO ST - Character string**

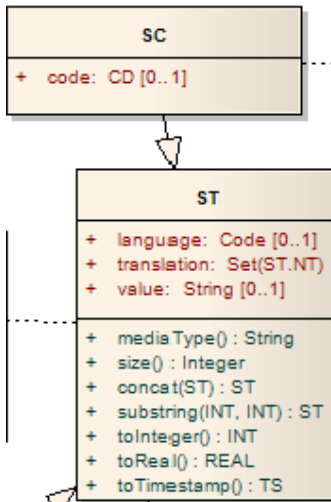


```
<value xsi:type="ST" value="Example ST. Make sure that the HL7 delimiters
are escaped properly, they are |, ~, ^, &, \."/>
```

```
<example xsi:type="ST" value="This is some content" validTimeLow="
200506011000" validTimeHigh="200507031500"
controlInformationRoot="1.2.3.4.5.6">
</example>
```

```
<example xsi:type="ST" language="en" value="cellulitis of the left foot"/>
```

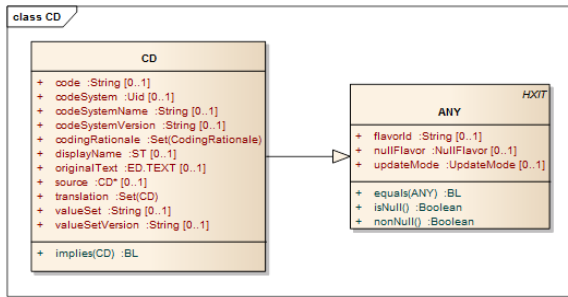
## ISO SC - coded string



```
<example xsi:type="SC" value="Intestinal nematode infection">
<displayName value="Intestinal nematode infection (disorder)"/>
</example>
```

```
<example xsi:type="SC" value="Lung nematode infection"/>
```

## ISO CD - Concept Descriptor Type



```

<example xsi:type="CD" code="784.0" codeSystem="2.16.840.1.113883.6.42">
<displayName value="Headache" />
</example>
  
```

```

<example xsi:type="CD" code="784.0" codeSystem="2.16.840.1.113883.6.42">
<displayName value="Headache" />
<originalText nullFlavor="NI" />
</example>
  
```

```

<example xsi:type="CD" code="784.0" codeSystem="2.16.840.1.113883.6.42">
<displayName value="Headache" />
<translation nullFlavor="NI" />
</example>
  
```

```

<example xsi:type="CD" code="784.0" codeSystem="2.16.840.1.113883.6.42">
<displayName value="Headache" />
<translation nullFlavor="NI" codeSystem="2.16.840.1.113883.6.96" />
</example>
  
```

```

<example xsi:type="CD" code="784.0" codeSystem="2.16.840.1.113883.6.42"
codeSystemName="ICD-9">
<displayName value="Headache" />
<originalText value="general headache" />
</example>
  
```

```

<example xsi:type="CD" code="G44.1" codeSystem="2.16.840.1.113883.6.3"
codeSystemName="ICD-10">
<displayName value="Headache" />
<originalText value="general headache" />
</example>
  
```

```

<example xsi:type="CD" nullFlavor="NI" />
<example xsi:type="CD" nullFlavor="OTH" codeSystem="2.16.840.1.113883.6.96"
/>
<example xsi:type="CD" nullFlavor="OTH" valueSet="
2.16.840.1.113883.19.11.1" valueSetVersion="20070711" />
<example xsi:type="CD" nullFlavor="OTH" codeSystem="2.16.840.1.113883.6.96"
>
<originalText value="Burnt ear with iron. Burnt other ear calling for
ambulance" />
</example>
  
```

```
<example xsi:type="CD" code="burn" codeSystem="2.16.840.1.113883.19.5.2">
<originalText value="Burnt ear with iron. Burnt other ear calling for
ambulance" />
</example>
```

```
<example xsi:type="CD" code="A10.1" codeSystem="2.16.840.1.113883.6.42">
<originalText value="Burnt ear with iron. Burnt other ear calling for
ambulance" />
</example>
```

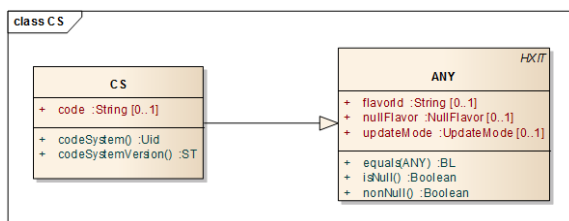
```
<example xsi:type="CD" nullFlavor="OTH" codeSystem="
2.16.840.1.113883.6.96">
<originalText value="Burnt ear with iron. Burnt other ear calling for
ambulance" />
<translation code="burn" codeSystem="2.16.840.1.113883.19.5.2" />
</example>
```

```
<example xsi:type="CD" nullFlavor="OTH" codeSystem="
2.16.840.1.113883.6.96">
<originalText value="Burnt ear with iron. Burnt other ear calling for
ambulance" />
<translation id="s1" code="burn" codeSystem="2.16.840.1.113883.19.5.2" />
<source xref="s1" />
</example>
```

```
<example xsi:type="CD" nullFlavor="OTH" codeSystem="
2.16.840.1.113883.6.96" />
<example xsi:type="CD" nullFlavor="OTH" valueSet="
2.16.840.1.113883.19.11.1" valueSetVersion="20070711" />
<example xsi:type="CD" code="128045006:{363698007=56459004}" codeSystem="
2.16.840.1.113883.6.42" codeSystemName="Snomed-CT">
<originalText value="Cellulitis of the foot" />
</example>
```

```
<example xsi:type="CD" code="J21.8 B95.6" codeSystem="
2.16.840.1.113883.6.260" codeSystemName="ICD-10 Dual Code Expression">
<originalText value="Staph aureus bronchiolitis" />
</example>
```

## ISO CS - Coded Simple



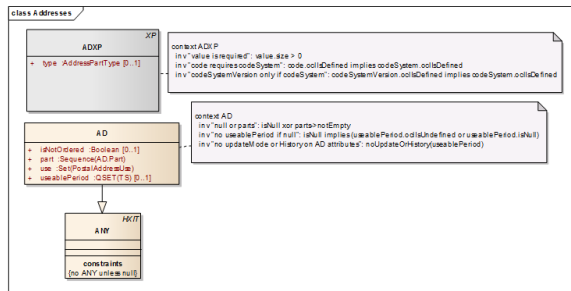
```
<example xsi:type="CS" code="NS"/>
```



```
<example xsi:type="II" root="2.16.840.1.113883.19.5.34" extension="
2345344" reliability="ISS" scope="OBJ"/>
```

```
<example xsi:type="II" root="2.16.840.1.113883.19.5.462" extension="
976295765" reliability="VRF" scope="VER"/>
```

## ISO AD - Address



```
<example xsi:type="AD" use="WP">
<part value="1050 W Wishard Blvd," />
<part type="DEL" />
<part value="RG 5th floor," />
<part type="DEL" />
<part value="Indianapolis, IN 46240" />
</example>
```

```
<example xsi:type="AD" use="WP">
<part type="AL" value="1050 W Wishard Blvd" />
<part type="AL" value="RG 5th floor" />
<part type="CTY" value="Indianapolis" />
<part type="STA" value="IN" />
<part type="ZIP" value="46240" />
</example>
```

```
<example xsi:type="AD" use="WP">
<part type="SAL" value="1050 W Wishard Blvd" />
<part type="ADL" value="RG 5th floor" />
<part type="CTY" value="Indianapolis" />
<part type="STA" value="IN" />
<part type="ZIP" value="46240" />
</example>
```

```
<example xsi:type="AD" use="WP">
<part type="BNR" value="1050" />
<part type="DIR" value="W" />
<part type="STB" value="Wishard" />
<part type="STTYP" value="Blvd" />
<part type="ADL" value="RG 5th floor" />
<part type="CTY" value="Indianapolis" />
<part type="STA" value="IN" />
<part type="ZIP" value="46240" />
</example>
```

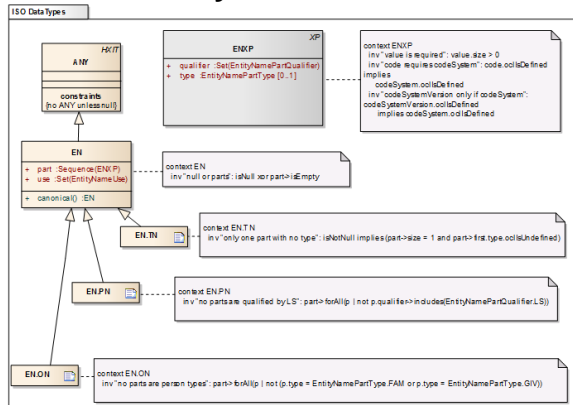


```

<example xsi:type="AD" use="HP">
<part type="STR" value="Windsteiner Weg" />
<part type="BNR" value="54a" />
<part type="CNT" code="DEU" codeSystem="1.0.3166.1.2" value="D" />
<part type="ZIP" value="14165" />
<part type="CTY" value="Berlin " />
</example>
<example xsi:type="AD" use="WP" nullFlavor="UNK"/>

```

## ISO EN - Entity Name



```

<example xsi:type="EN">
<part type="GIV" value="Adam" />
<part type="GIV" value="A." />
<part type="FAM" value="Everyman" />
</example>

```

```

<example xsi:type="EN" use="IDE">
<part type="FAM" value="" />
<part type="GIV" value="" />
</example>

```

```

<example xsi:type="EN" use="SYL">
<part type="FAM" value="" />
<part type="GIV" value="" />
</example>

```

```

<example xsi:type="EN" use="ABC">
<part type="FAM" value="KIMURA" />
<part type="GIV" value="MICHIO" />
</example>

```

```

<example xsi:type="EN">
<part type="FAM" value="" />
<part type="GIV" value="" />
<part type="GIV" value="" />
</example>

```

```
<example xsi:type="EN">
<part type="FAM" value="EMELIN" />
<part type="GIV" value="IVAN" />
</example>
```

```
<example xsi:type="EN" use="OR">
<part type="GIV" value="Jan" />
<part type="GIV" value="Erik" />
<part type="FAM" qualifier="MID" value=" Östlund" />
<part type="FAM" value="Erikson" />
</example>
```

```
<example xsi:type="EN">
<part type="GIV" value="Jan" />
<part type="FAM" value="Erikson" />
</example>
```

```
<example xsi:type="EN" use="T">
<part type="GIV" value="Margrete Jente" />
<part type="FAM" value="Hansen" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="GIV" value="Karin" />
<part type="FAM" qualifier="MID" value="Hansen" />
<part type="FAM" value="Erikson" />
</example>
```

```
<example xsi:type="EN" use="OR">
<part type="GIV" value="Karin" />
<part type="FAM" qualifier="MID" value="Erikson" />
<part type="FAM" qualifier="SP" value="Berg" />
</example>
```

```
<example xsi:type="EN" use="C">
<part type="GIV" value="Karin" />
<part type="FAM" value="Berg" />
</example>
```

```
<example xsi:type="EN">
<part type="GIV" value="Peter" />
<part type="GIV" qualifier="CL" value="James" />
<part type="FAM" value="Chalmers" />
</example>
```

```
<example xsi:type="EN" use="OR">
<part type="GIV" value="David" />
<part type="GIV" value="Woodford" />
<part type="FAM" value="Smith" />
</example>
```

```
<example xsi:type="EN" use="C">
<part type="GIV" value="Woody" />
<part type="FAM" value="Smith" />
</example>
```

```
<example xsi:type="EN" use="OR">
<part type="GIV" value="Uy" />
<part type="GIV" value="Dung" />
<part type="FAM" value="Nguyen" />
</example>
```

```
<example xsi:type="EN" use="C">
<part type="GIV" value="Dennis" />
<part type="FAM" value="Nguyen" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="GIV" value="Grahame" />
<part type="GIV" value="David" />
<part type="FAM" value="Grieve" />
</example>
```

```
<example xsi:type="EN" use="P">
<part type="GIV" value="Junior" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="TITLE" value="Dr" />
<part type="GIV" value="John" />
<part type="GIV" value="Paul" />
<part type="FAM" value="Jones" />
<part type="TITLE" qualifier="SFX" value="III" />
<part type="DEL" value=", " />
<part type="TITLE" qualifier="AC" value="PhD" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="GIV" value="Mary Jane" />
<part type="FAM" value="Contrata" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="GIV" value="Karen" />
<part type="FAM" value="Van" />
<part type="FAM" value="Henteryck" />
</example>
```

```
<example xsi:type="EN" use="OR C">
<part type="GIV" value="Selby" />
<part type="FAM" qualifier="SP" value="Butt" />
<part type="FAM" value="Beeler" />
</example>
```

```
<example xsi:type="EN" use="OR OLD">
<part type="GIV" value="Mary" />
<part type="FAM" qualifier="CL" value="Selby" />
<part type="FAM" value="Butt" />
</example>
```

```
<example xsi:type="EN" use="OR A OLD">
<part type="GIV" value="Jacqueline " />
<part type="GIV" value="Janette" />
<part type="GIV" value="Patricia" />
<part type="FAM" value="Campbell" />
</example>
```

```
<example xsi:type="EN" use="P OLD">
<part type="GIV" value="Ruth" />
<part type="FAM" value="Brinkman" />
</example>
```

```
<example xsi:type="EN" use="P OLD">
<part type="GIV" value="Ruth" />
<part type="FAM" qualifier="SP" value="Grieve " />
</example>
```

```
<example xsi:type="EN" use="OR">
<part type="GIV" value="Jacqueline" />
<part type="GIV" value="Janette" />
<part type="GIV" value="Patricia" />
<part type="FAM" value="Grieve" />
</example>
```

```
<example xsi:type="EN" use="C">
<part type="GIV" value="Jacque" />
<part type="FAM" value="Grieve" />
</example>
```

```
<example xsi:type="EN" use="C OLD">
<part type="GIV" value="Jacque Ruth" />
<part type="FAM" value="Grieve" />
</example>
```

```
<example xsi:type="EN" use="M">
<part type="FAM" value="Brinkman " />
</example>
```

```
<example xsi:type="EN" use="OR OLD">
<part type="GIV" qualifier="BR" value="Del-Roy" />
<part type="FAM" qualifier="BR" value="Burgess" />
</example>
```

```
<example xsi:type="EN" use="P">
<part type="GIV" value="Yor-Led" />
<part type="FAM" value="Ssegrub" />
</example>
```

```

<example xsi:type="EN" use="OR ABC OLD">
<part type="GIV" qualifier="AD PFX" value="Abdul" />
<part type="DEL" value="-" />
<part type="GIV" qualifier="AD SFX" value="Malik" />
<part type="FAM" qualifier="AD" value="Shakir" />
</example>

```

```

<example xsi:type="EN" use="OR ABC C">
<part type="GIV" qualifier="AD" value="AbdulMalik" />
<part type="FAM" qualifier="AD" value="Shakir" />
<part type="TITLE" value="Sr" />
</example>

```

```

<example xsi:type="EN" use="P DN">
<part type="GIV" qualifier="AD" value="Abdul" />
</example>

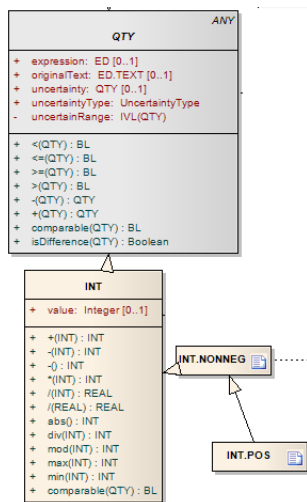
```

```

<example xsi:type="EN" use="P">
<part value="AMS" />
</example>

```

## ISO INT - Integer

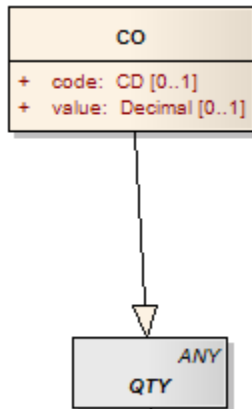


```

<example xsi:type="INT" value="23" />
<example xsi:type="INT" nullFlavor="NASK" />

```

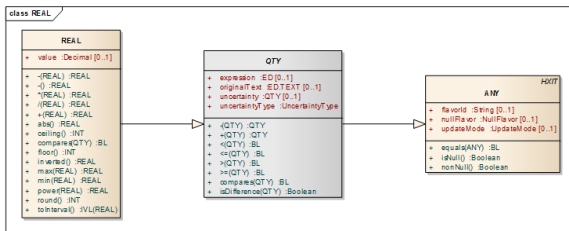
## ISO CO - Coded Ordinal



```

<example xsi:type="CO" value="1">
<displayName value="Poor"/>
</example>
  
```

## ISO REAL - real



```
<value xsi:type="REAL" value="0.36" />
```

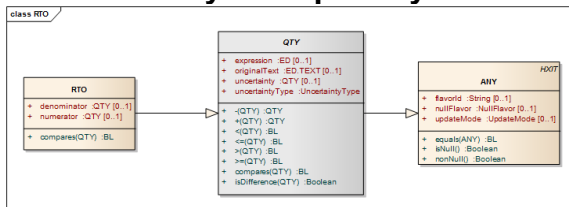
```
<example xsi:type="REAL" value="23.0005" />
```

```
<example xsi:type="REAL" value="23.00" />
```

```

<example xsi:type="REAL" value="23" uncertaintyType="N">
<uncertainty xsi:type="REAL" value="0.87" />
</example>
  
```

## ISO RTO - Physical quantity interval



```

<example xsi:type="RTO" denominator="1" numerator="1" />
  
```

```

<value xsi:type="RTO">
<numerator xsi:type="REAL" value="1"/>
<denominator xsi:type="REAL" value="3"/>
</value>

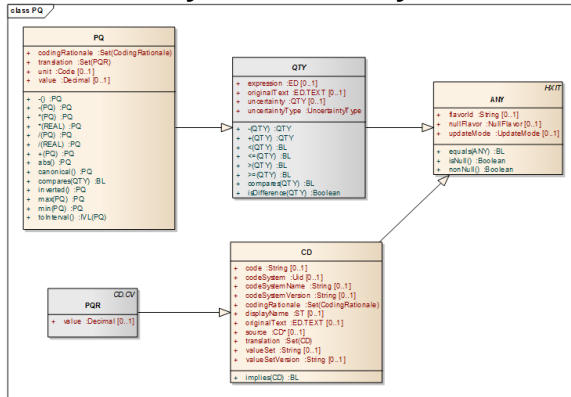
```

```

<example xsi:type="RTO">
<numerator xsi:type="MO" value="103.00" currency="USD"/>
<denominator xsi:type="PQ" value="1" unit="day"/>
</example>

```

## ISO PQ - Physical Quantity



```

<value xsi:type="PQ" value="3.5" unit="/pL">
<originalText mediaType="text/plain" value="3.5"/>
<translation code="x10*12/L" codeSystemName="ISO+" value="3.5"/>
</value>

```

```

<value xsi:type="PQ" value="8" >
<translation code="xxx138901" codeSystemName="SNOMED-CT" value="8">
<displayName value="capsules" />
</translation>
</value>

```

```

<example xsi:type="PQ" value="1" unit="g" />

```

```

<example xsi:type="PQ" value="1" unit="mmol/l" />

```

```

<example xsi:type="PQ" value="1" unit="mmol" />

```

```

<example xsi:type="PQ" value="1.1" unit="mg/mL" />

```

```

<example xsi:type="PQ" value="1.1" unit="mg/mL" codingRationale="R">
<translation codingRationale="O" value="0.0011" codeSystem="
2.16.840.1.113883.19.10" code="grams/litre" />
</example>

```

```

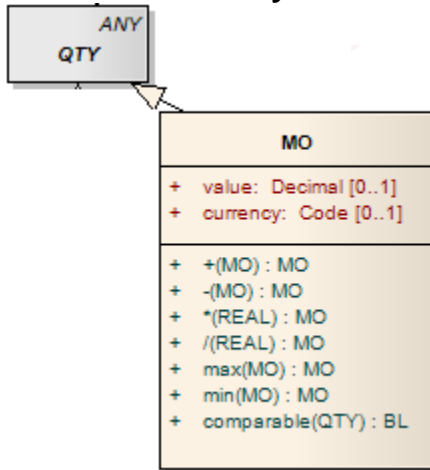
<example xsi:type="PQ" unit="1">
<uncertainRange>
<low xsi:type="PQ" value="1" />
<high xsi:type="PQ" value="2" />

```

```
</uncertainRange>
</example>
```

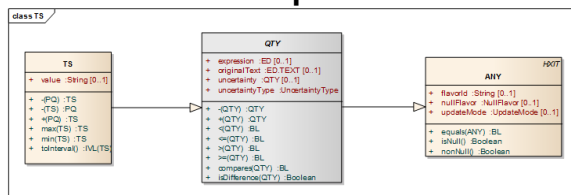
```
<example xsi:type="PQ" nullFlavor="DER" unit="mL">
<expression mediaType="application/hl7-factor+xml">
<xml>
<coefficient value="30" unit="mL/kg" />
<factor value="bodyMass" />
</xml>
</expression>
</example>
```

## ISO MO - monetary amount



```
<example xsi:type="MO" value="42" currency="AUD" />
```

## ISO TS - TimeStamp



```
<sent_datetime xsi:type="TS" value="20110218101133+1000" />
```

```
<example xsi:type="TS" value="19750621" updateMode="R" />
```

```
<example xsi:type="TS" nullFlavor="NI" updateMode="D" />
```

```
<example xsi:type="TS" nullFlavor="NI" updateMode="R" />
```

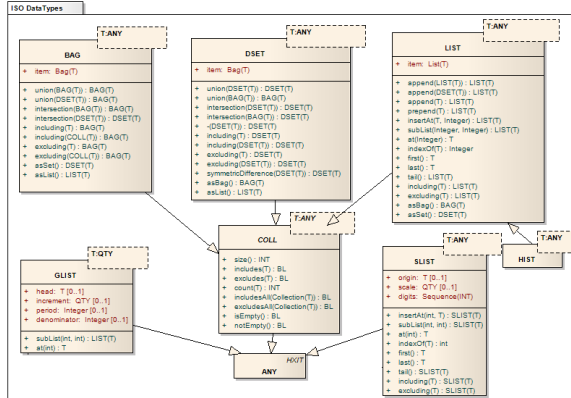
```
<example xsi:type="TS" nullFlavor="NI" updateMode="K" />
```

```
<example xsi:type="TS" value="20031101234511+0500" />
```



```
<example xsi:type="TS" value="1945" />
```

## ISO Collection Datatypes



## ISO DSET - discrete set

```
<example xsi:type="DSET_INT">
<item value="3" />
<item value="6" />
<item value="9" />
<item value="11" />
</example>
```

```
<example xsi:type="DSET_INT">
<item value="11" />
<item value="6" />
<item value="9" />
<item value="3" />
</example>
```

```
<sTEL xsi:type="DSET_TEL">
<item value="tel:+11015551234" use="H" capabilities="voice" />
<item value="tel:+11995556787" use="MC" capabilities="voice sms" />
<item value="tel:+11015551235" capabilities="fax" />
<item value="mailto:example@example.com" />
</sTEL>
```

```
<sTEL xsi:type="DSET_TEL">
<item value="tel:+11015551234" use="H" capabilities="voice" updateMode="D"
/>
<item value="tel:+12315559876" use="H" capabilities="voice" updateMode="A"
/>
</sTEL>
```

```
<sTEL xsi:type="DSET_TEL">
<item value="tel:+12315559876" use="H" capabilities="voice" updateMode="R"
/>
</sTEL>
```

```
<sTEL xsi:type="DSET_TEL">
<item value="tel:+11015551234" use="H" capabilities="voice" updateMode="D"
/>
```

```
<item value="tel:+ 11015551234" use="H WP" capabilities="voice fax"
updateMode="A" />
</sTEL>
```

```
<sTEL xsi:type="DSET_TEL">
<item value="tel:+ 11015551234" use="H WP" capabilities="voice fax"
updateMode="R" />
</sTEL>
```

```
<sII xsi:type="DSET_II">
<item root="2.16.840.1.113883.19.5.971" extension="763491" reliability="
VRF" scope="OBJ" />
<item root="2.16.840.1.113883.19.5.972" extension="351324" reliability="
VRF" scope="VER" />
<item root="0282CA34-2E4E-4B9D-82A5-BD2BF8497940" reliability="ISS" scope="
VW" />
</sII>
```

```
<sREAL xsi:type="DSET_REAL">
<item value="3.1" />
<item value="3.5" />
</sREAL>
```

## ISO BAG - bag

```
<example xsi:type="BAG_TEL">
<item value="tel:+15556667777" use="H"/>
<item nullFlavor="UNK" use="WP"/>
</example>
```

```
<example xsi:type="BAG_TEL">
<item nullFlavor="UNK" use="WP"/>
<item value="tel:+15556667777" use="H"/>
</example>
```

## ISO LIST - Sequence

```
<value xsi:type="LIST_INT">
<value value="-7"/>
<value value="-7"/>
<value value="-8"/>
<value value="-8"/>
<value value="-9"/>
<value value="-9"/>
<value value="-9"/>
<value value="-7"/>
<value value="-7"/>
<value value="-8"/>
<value value="-8"/>
<value value="-9"/>
<value value="-9"/>
<value value="-9"/>
</value>
```

```
<example xsi:type="LIST_INT">
<item value="3"/>
<item value="11"/>
<item value="6"/>
```

```
<item value="9"/>
</example>
```

## ISO GLIST - generated sequence

```
<example xsi:type="GLIST_PQ" period="100" denominator="100">
<head value="0" unit="V"/>
<increment xsi:type="PQ" value="1" unit="mV"/>
</example>
```

```
<example xsi:type="GLIST_TS" denominator="1">
<head value="20020729203000"/>
<increment xsi:type="PQ" value="100" unit="us"/>
</example>
```

## ISO SLIST - sampled sequence

```
<example xsi:type="SLIST_PQ">
<origin value='0' unit='uV'/>
<scale xsi:type="PQ" value='2.5' unit='uV'/>
<digit value="-4"/>
<digit value="-13"/>
<digit value="-18"/>
<digit value="-18"/>
<digit value="-18"/>
<digit value="-18"/>
<digit value="-17"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-17"/>
<digit value="-18"/>
<digit value="-18"/>
<digit value="-1"/>
<digit value="-17"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-16"/>
<digit value="-15"/>
<digit value="-13"/>
<digit value="-11"/>
<digit value="-10"/>
<digit value="-10"/>
<digit value="-9"/>
<digit value="-6"/>
<digit value="-4"/>
<digit value="-5"/>
<digit value="-5"/>
<digit value="-3"/>
<digit value="-2"/>
<digit value="-2"/>
<digit value="-1"/>
<digit value="1"/>
<digit value="2"/>
<digit value="3"/>
<digit value=""/>
<digit value="7"/>
<digit value="8"/>
<digit value="9"/>
<digit value="10"/>
<digit value="11"/>
<digit value="12"/>
<digit value="13"/>
```

<digit value="15"/>  
<digit value="17"/>  
<digit value="19"/>  
<digit value="21"/>  
<digit value="23"/>  
<digit value="25"/>  
<digit value="27"/>  
<digit value="29"/>  
<digit value="30"/>  
<digit value="30"/>  
<digit value="31"/>  
<digit value="34"/>  
<digit value="37"/>  
<digit value="40"/>  
<digit value="43"/>  
<digit value="45"/>  
<digit value="4"/>  
<digit value="46"/>  
<digit value="46"/>  
<digit value="46"/>  
<digit value="46"/>  
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<digit value="57"/>  
<digit value="57"/>  
<digit value="5"/>  
<digit value="53"/>  
<digit value="50"/>  
<digit value="47"/>  
<digit value="45"/>  
<digit value="74"/>  
<digit value="51"/>  
<digit value="38"/>  
<digit value="33"/>  
<digit value="31"/>  
<digit value="28"/>  
<digit value="25"/>  
<digit value="21"/>  
<digit value="16"/>  
<digit value="14"/>  
<digit value="15"/>  
<digit value="13"/>  
<digit value="9"/>  
<digit value="7"/>  
<digit value="4"/>  
<digit value="1"/>  
<digit value="-1"/>  
<digit value="-3"/>  
<digit value="-4"/>  
<digit value="-6"/>  
<digit value="-10"/>  
<digit value="-12"/>  
<digit value="-13"/>  
<digit value="-12"/>  
<digit value="-12"/>  
<digit value="-17"/>  
<digit value="-18"/>



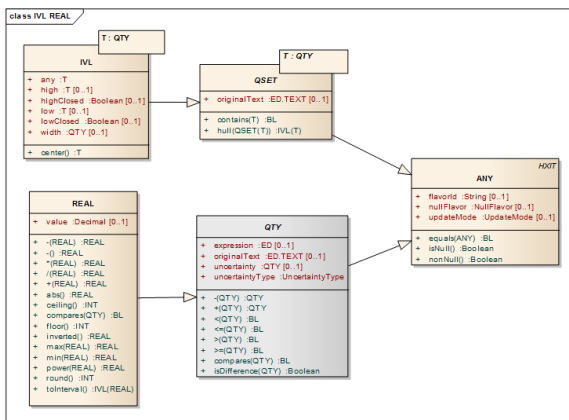
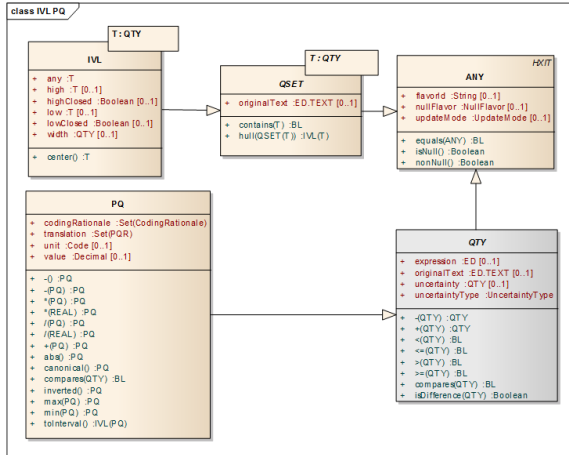
QSET is an abstract type. a working QSET is specified as an expression tree built using a combination of operator (QSI,QSD,QSU,QSP) and component types (QSC, QSS and IVL; and for TS, PIVL and EIVL).

```
<example xsi:type="QSI_TS">
  <term xsi:type='PIVL_TS' alignment='DW'>
    <phase lowClosed='true' highClosed='false'>
      <low value='20001202' />
      <high value='20001203' />
    </phase>
    <period value='2' unit='wk' />
  </term>
  <term xsi:type='IVL_TS' lowClosed='true' highClosed='false'>
    <low value='20020101' />
    <high value='20040101' />
  </term>
  <term xsi:type='QSP_TS'>
    <low xsi:type="QSI_TS">
      <term xsi:type='PIVL_TS'>
        <phase highClosed='false'>
          <low value='19870525' />
          <high value='19870601' />
        </phase>
        <period value='1' unit='a' />
      </term>
      <term xsi:type='PIVL_TS'>
        <phase highClosed='false'>
          <low value='19870105' />
          <high value='19870106' />
        </phase>
        <period value='1' unit='wk' />
      </term>
    </low>
    <high xsi:type="QSI_TS">
      <term xsi:type='PIVL_TS'>
        <phase highClosed='false'>
          <low value='19870901' />
          <high value='19870908' />
        </phase>
        <period value='1' unit='a' />
      </term>
      <term xsi:type='PIVL_TS'>
        <phase highClosed='false'>
          <low value='19870105' />
          <high value='19870106' />
        </phase>
        <period value='1' unit='wk' />
      </term>
    </high>
  </term>
</example>
```

```
<example xsi:type='QSS_TS'>
  <term value='20071101' />
  <term value='20071106' />
</example>
```

```
<example xsi:type='QSC_TS' >
  <code code="JHCHRXMS" codeSystem="2.16.840.1.113883.5.1022" />
</example>
```

## ISO IVL\_QTY - Interval



```

<value xsi:type="IVL_QTY" lowClosed="true" highClosed="true">
<low xsi:type="PQ" value="26.5" unit="pg"/>
<high xsi:type="PQ" value="33" unit="pg"/>
</value>
  
```

```

<value xsi:type="IVL_QTY" highClosed="false">
<originalText value="<^0.1"/>
<high xsi:type="PQ" value="0.1" unit="/nL">
<translation code="x10^9/L" codeSystemName="ISO+" value="0.1"/>
</high>
</value>
  
```

```

<value xsi:type="IVL_QTY" lowClosed="true" highClosed="true">
<originalText value="^50.0^-55.0"/>
<low xsi:type="PQ" value="50.0" unit="%">
<translation code="%" codeSystemName="ISO+" value="50.0"/>
</low>
<high xsi:type="PQ" value="55.0" unit="%">
<translation code="%" codeSystemName="ISO+" value="55.0"/>
</high>
</value>
  
```

```

<value xsi:type="IVL_QTY" lowClosed="true">
<originalText mediaType="application/x-hl7-SN" value=">=^0.5">
<description language="en" value="Original HL7 SN field value"/>
</originalText>
<low xsi:type="PQ" value="0.5" unit="/nL">
  
```

```
<translation code="x10*9/L" codeSystemName="ISO+" value="0.5"/>
</low>
</value>
```

```
<value xsi:type="IVL_QTY" lowClosed="true" highClosed="true">
<originalText mediaType="application/x-hl7-SN" value="^50.0^-^55.0">
<description language="en" value="Original HL7 SN field value"/>
<translation mediaType="application/x-hl7-segment" value="OBX|11|SN|770-
8^Neutrophils^LN^271035003^^SCT|1.1.9.1|^50.0^-^55.0|%^ISO+|||F">
<description language="en" value="Original HL7 Segment"/>
</translation>
</originalText>
<low xsi:type="PQ" value="50.0" unit="%" />
<high xsi:type="PQ" value="55.0" unit="%" />
</value>
```

```
<value xsi:type="IVL_QTY" lowClosed="true" highClosed="true">
<originalText value="0.37-0.47" />
<low xsi:type="REAL" value="0.37">
<originalText value="0.37" />
</low>
<high xsi:type="REAL" value="0.47">
<originalText value="0.47" />
</high>
</value>
```

```
<value xsi:type="IVL_QTY" highClosed="false">
<originalText value="<^0.36" />
<high xsi:type="REAL" value="0.36" />
</value>
```

## ISO IVL\_INT - Integer Interval

```
<example xsi:type='IVL_INT'>
<low value='2' />
<high value='4' />
</example>
```

## ISO IVL\_PQ - Integer Interval

```
<example xsi:type='IVL_PQ' lowClosed='true' highClosed='false'>
<low value='2.8' unit='m' />
<high value='4.6' unit='m' />
</example>
```

## ISO IVL\_TS - Timestamp Interval

```
<example xsi:type='IVL_TS'>
<low value='200012041000' />
<high value='200012041030' />
</example>
```

```
<example xsi:type="IVL_TS" lowClosed="true" highClosed="false">
<low value="19450101000000.0000" />
<high value="19460101000000.0000" />
</example>
```



```
<example xsi:type="IVL_TS" lowClosed="true" highClosed="false">
<low value="20020101" />
<high value="20040101" />
</example>
```

## ISO PIVL - Periodic Interval

```
<example xsi:type='PIVL_TS' isFlexible='true'>
<period value='12' unit='h' />
</example>
```

```
<example xsi:type='PIVL_TS' isFlexible='true'>
<frequency>
<numerator xsi:type="INT" value='2' />
<denominator xsi:type="PQ" value="1" unit='d' />
</frequency>
</example>
```

```
<example xsi:type='PIVL_TS' isFlexible='true'>
<frequency>
<numerator xsi:type="INT" value='7' />
<denominator xsi:type="PQ" value="1" unit='d' />
</frequency>
</example>
```

```
<example xsi:type='PIVL_TS' isFlexible='true'>
<period value='3.4285714285714285714285714285714' unit='h' />
</example>
```

```
<example xsi:type='PIVL_TS'>
<phase>
<width xsi:type="PQ" value='10' unit='min' />
</phase>
<period value='12' unit='h' />
</example>
```

```
<example xsi:type='PIVL_TS' alignment='MY'>
<phase highClosed='true' lowClosed='false'>
<low value='198709' />
<high value='198710' />
</phase>
<period value='1' unit='a' /> <!-- a means year in UCUM -->
</example>
```

```
<example xsi:type='PIVL_TS' alignment='DW'>
<phase highClosed='true' lowClosed='false'>
<low value='20001202' />
<high value='20001203' />
</phase>
<period value='2' unit='wk' />
</example>
```

```
<example xsi:type='PIVL_TS'>
<period value='5' unit='h' uncertaintyType='U'>
<uncertainty value='0.57735' unit='h' />
```

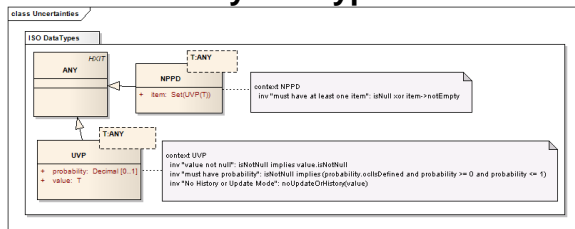
```
</period>
</example>
```

## ISO EIVL - Event-Related Periodic Interval of Time

```
<example xsi:type='EIVL_TS' event='CM'>
<offset>
<low value='-1' unit='h' />
<high value='-50' unit='min' />
</offset>
</example>
```

```
<example xsi:type='EIVL_TS' event='CV'>
<offset>
<low value='30' unit='min' />
<high value='30' unit='min' />
</offset>
</example>
```

## ISO Uncertainty datatypes



## ISO UVP - Uncertain value - probabilistic

```
<example xsi:type="NPPD_CD">
<item probability="0.5">
<value code="22760-3" codeSystem="2.16.840.1.113883.6.1">
<displayName value="Potassium SerPl-mCnc" />
</value>
</item>
</example>
```

## ISO NPPD - Non-parametric probability distribution

```
<example xsi:type='NPPD_ST'>
<item probability="0.1">
<value value="Yankees" />
</item>
<item probability="0.04">
<value value="Red Sox" />
</item>
<item probability="0.05">
<value value="White Sox" />
</item>
<item probability="0.08">
<value value="Indians" />
</item>
<item probability="0.05">
<value value="Tigers" />
</item>
<item probability="0.07">
<value value="Mariners" />
</item>
```

```
<item probability="0.02">  
<value value="Royals"/>  
</item>  
<item probability="0.06">  
<value value="Orioles"/>  
</item>  
</example>
```